

Notice of Allowability

Application No.

09/920,003

Examiner

Wes Tucker

Applicant(s)

BERKNER ET AL.

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to after-final amendment filed 11-9-06.
2. ☒ The allowed claim(s) is/are 2-14, 16-42, 44-54, 56-62, 64-74 and 104-106.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 11-9-06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other

JINGGEWU
PRIMARY EXAMINER

DETAILED ACTION

Response to Amendment

1. Applicant's after-final response filed November 9th 2006 has been entered and made of record.

2. Applicant has cancelled claims 15, 43, 55, 63 and 75-103. Claims 2, 8, 11, 12, 14, 16, 24, 27, 28, 31, 35-39, 41, 42, 44, 51, 52, 56, 59, 64, 65 and 70-74 have all been amended to correct dependency due to the mentioned cancelled claims. Claims 2-14, 16-42, 44-54, 56-62, 64-74 and 104-106 are now pending.

3. Applicant's amendments effectively cancelled all previously rejected independent claims independent claims 1, 15, 43, 55 and 63. The claims depending from these previously rejected independent claims have all been amended to depend from allowed independent claims, therefore putting all of the remaining claims in condition for allowance. The reasons for allowance are given below and can be found in the previous Office Actions.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michale J. Mallie Reg. No. 36,591 on November 27, 2006.

Please amend claim 17 to depend from claim 16 instead of from claim 17.

Please amend claims 104-106 as follows:

In line 1 of claim 104, replace the term "recordable" with the phrase "computer-readable".

In line 1 of claim 105, replace the term "recordable" with the phrase "computer-readable".

In line 1 of claim 106, replace the term "recordable" with the phrase "computer-readable".

Allowable Subject Matter

4. Claims 2-14, 16-42, 44-54, 56-62, 64-74 and 104-106 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 22, 29, 30, 32, 57, 58, and 60-62 were previously indicated as allowable subject matter. Each of these claims has been amended as required and are therefore now allowed. New Claims 104-106 are also found to be allowable for the same reasons as they recite essentially the same subject matter as allowed claims 22, 29 and 32 respectively.

The following is an examiner's statement of reasons for indicating allowable subject matter:

Claims 22, 29, 30, 32, 57, 58, 60-62 and 104-106 all contain specifics in the calculation of wavelet transforms that are not explicitly disclosed nor reasonably suggested by either reference to Sato or Prieto or any other found prior art.

The previously rejected claims were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 5,974,181 to Prieto and U.S. Patent 6,985,632 to Sato et al.

With regard to claim 29, Prieto discloses a method comprising characterizing quantization noise in reconstructed data generated in response to application of an inverse wavelet transform (column 4, lines 14-27 and 56-63). Prieto teaches characterizing quantization noise by determining the noise caused by quantization that is uncorrelated to the image so that it can be filtered or removed.

Prieto further discloses removing the quantization noise from the reconstructed data constructed during decoding (column 4, lines 14-27). Prieto also discloses that the filtering or noise removal may be performed before or after the inverse wavelet transformation stage (column 4, lines 56-63).

Prieto does not explicitly disclose wherein the removing quantization noise comprises applying an M-level forward transform to LL components, thresholding coefficients, and applying an inverse transform to threshold coefficients to create denoised LL components.

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Sato discloses removing noise this way by:

Applying an M-level forward transform to LL components (column 15, lines 1-5);

Thresholding coefficients (column 15, lines 34-55 and column 16, lines 30-50);

and

Applying a M-level inverse transform to create denoised LL components (column 16, lines 30-50).

The practice of removing noise using wavelet denoising techniques is well known in the art to be advantageous when removing noise that is attributable to certain frequencies. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use the wavelet noise removal process taught by Sato in conjunction with the noise removal of Prieto in order to remove noise associated with particular frequencies or sub-bands of the image to be enhanced.

Neither Prieto nor Sato nor any other found prior art of record teaches or fairly suggests the rescaling of coefficients after the thresholding process claimed.

With regard to claims 22 and 104, similar discussion applies to the quantizer details that are claimed.

With regard to claims 32, 60, 61 and 106 neither Prieto nor Sato nor any other found prior art of record teaches or fairly suggests the shrinking of a coefficient value according to a threshold.

With regard to claim 57 and 105, the discussion of claim 39 also applies.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 571-272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wes Tucker

11-27-06

JINGGE WU
PRIMARY EXAMINER

